CHAPTER 6

6.0 MANAGEMENT OF THE IN-BAY DISPOSAL GOAL

6.1 INTRODUCTION

This chapter describes the LTMS plan for managing in-Bay disposal. It establishes short- and long-term management objectives. The following sections describe how the LTMS agencies will measure progress of the LTMS and management or regulatory actions the agencies will take if the objectives are not met.

As discussed previously, the various interested parties have agreed to work voluntarily towards implementation of the LTMS goals of increasing reuse and limiting in-Bay disposal of dredged material. In order to support these efforts, the LTMS agencies are proposing a series of regional planning initiatives to aid reuse efforts and support the transition to low in-Bay disposal.

This chapter also includes a summary of mechanisms needed to implement the plan. The agency resources required to support this are discussed in Chapter 8.

6.2 IMPLEMENTATION MEASURES

- BCDC and the Regional Board will adopt policies and regulations to implement the LTMS goals as described in the LTMS Management Plan (Chapter 10).

- All the LTMS agencies will sign and distribute the LTMS Management Plan.

6.3 MANAGEMENT OBJECTIVES

The alternative selected by the LTMS agencies in the LTMS EIS/EIR as the preferred alternative and the federal Record of Decision (ROD) provides for low disposal volumes at in-Bay sites. The adopted LTMS includes a reduction in placement of dredged material at in-Bay sites to 1.0 million cubic yards (mcy) per year. However, the LTMS is a long-term approach and will need to be phased in over time. The phase-in period will be called the transition period. The initial action of the LTMS, reducing allowable in-Bay disposal to a target 2.8 mcy per year, began with the signing of the LTMS ROD in July 1999. The transition period will involve decreasing the amount of dredged material disposed in-Bay every three years over a 12-year period, from 2.8 mcy toward the LTMS goal of 1.0 mcy (Figure 6.1). The 12-year period was chosen to reduce economic dislocations to dredgers by allowing time for new diked bayland and upland reuse sites to come on-line, new equipment and practices to be implemented, and funding mechanisms and arrangements to be established. The transition period will not begin until adoption of the LTMS

Management Plan (Management Plan) by the agencies and adoption of the San Francisco Bay Plan (Bay Plan) and San Francisco Bay Basin Plan (Basin Plan) amendments necessary to implement the Management Plan.

The starting in-Bay disposal volume for the transition period, approximately 2.8 mcy, is halfway between the maximum yearly disposal volume and the average yearly disposal volume for the years 1991 through 1999 (Figure 6.1). Appendix H provides an example of the data table used in determining these volumes. The volume was chosen to reflect actual disposal activity while taking into account the variability of the Bay disposal volumes, in order to provide a less complex and more predictable approach. In-Bay disposal volumes will decrease every three years and the amount of each step of the decrease is approximately 387,500 cy. This means that in-Bay disposal volumes will reach the LTMS goal in approximately 12 years. Additionally, there will be a contingency volume in the event of emergencies or unforeseen events of up to 250,000 cy per year.

The existing individual in-Bay disposal site targets will be maintained at their present volumes (Section 5.4). Although these cumulatively add up to a greater volume than the total in-Bay limit of 2.8 mcy, this approach is intended to provide flexibility in management of the disposal sites and dredging activities.

6.3.1 Phase I

There are two phases in implementation of the LTMS. Phase I is a voluntary effort by all parties to reach and maintain the long-term disposal goals. As long as the overall yearly LTMS transition goals are met through voluntary efforts, dredging projects will not be required to comply with project-specific in-Bay volume allocations. The Dredged Material Management Office (DMMO) will track actual disposal volumes in relation to allocations but individual projects will not be limited based on allocations during Phase I. Therefore, Phase I allocations would only be guidelines to indicate to dredging projects what allocations under Phase II would be. Figure 6.1 shows the transition and long-term goals. Dredging projects will still be evaluated using existing Bay Plan and Basin Plan policies regarding disposal of dredged material and an analysis of whether in-Bay disposal is the least environmentally damaging practicable alternative pursuant to the Clean Water Act. However, this feasibility analysis will be more programmatic in nature than the detailed alternative analyses for Phase II. If the LTMS disposal goals (transition or long term) cannot be achieved through voluntary efforts, then an allocation scheme will be implemented as Phase II, the regulatory phase.

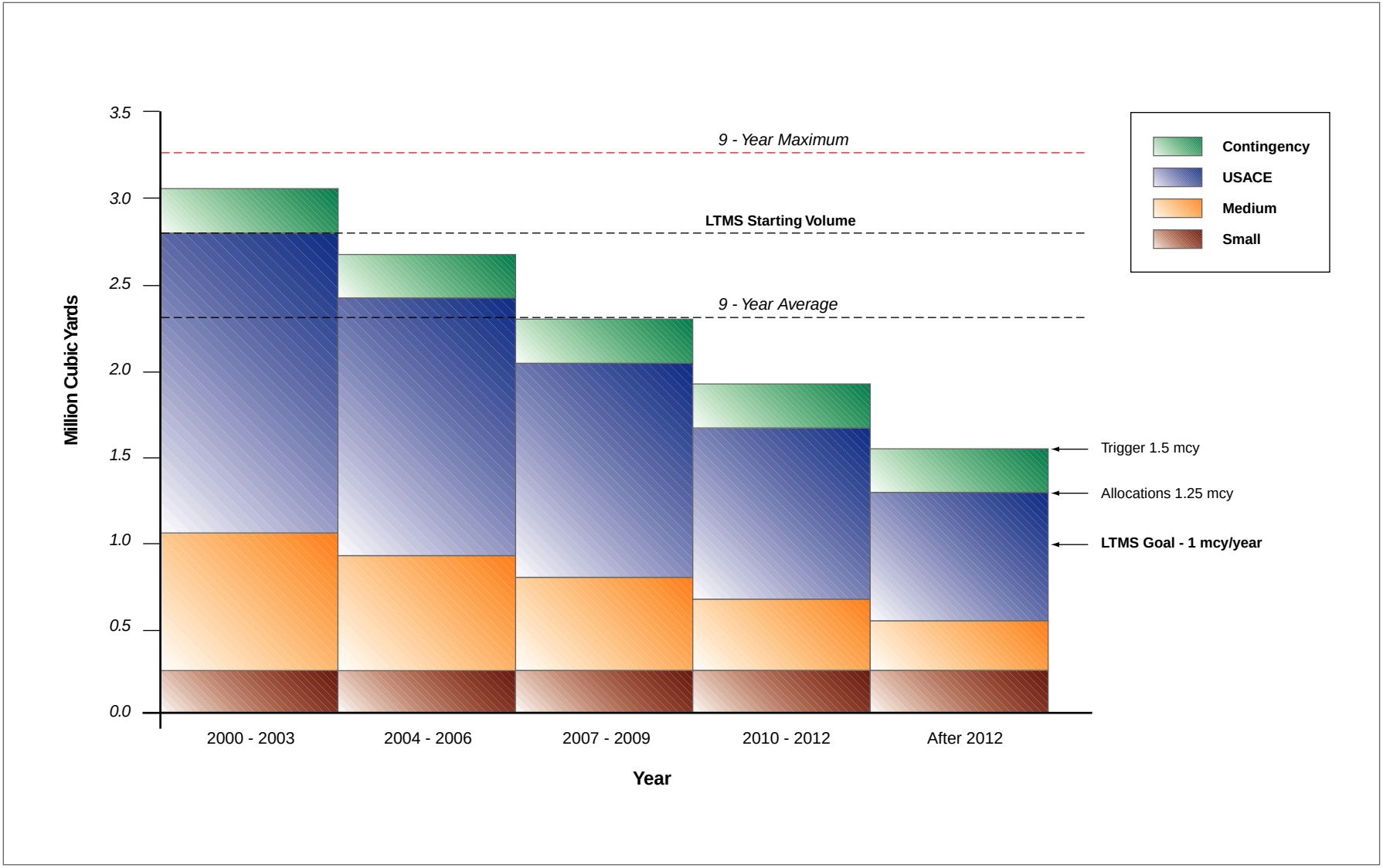
6.4 MEASURING PROGRESS IN MEETING OBJECTIVES

To determine if the in-Bay disposal volumes are tracking the transition, particularly in light of the inherent variability of dredging operations, it will be necessary to continue to maintain accurate records of volumes of dredged material disposed in-Bay. These records will be maintained by the DMMO. The official volume record will be the in situ volume calculated as the difference between pre and post dredge bathymetric surveys usually required in permits. Until the in situ

Figure 6.1

SOURCE: Final LTMS EIS/EIR, 1998.

In-Bay Transition Allocations



volumes are received, the bin volume reported by dredgers will be used in volume calculations and reporting.

By the end of March each year, in conjunction with their annual meeting, the DMMO will publish the previous calendar year's in-Bay disposal volume, both aggregate and by individual dredging project. The DMMO will also maintain and publish a continuing chart showing the goals (transition and long term) and in-Bay disposal volumes. This chart will commence with data starting in 1991. As part of its reporting requirements, the DMMO will evaluate the disposal data and issue it in their annual report. This report will become part of the decision-making process to determine if any change should be recommended between Phases I and II.

6.5 MANAGEMENT ACTIONS

If the disposal volumes show that the goal (transition or long term, as appropriate) is not being met as described below, then the LTMS agencies will take actions to consider implementing Phase II of the plan, where regulatory allocation volumes will be provided to each dredging project, limiting their in-Bay disposal volume.

6.5.1 Trigger Mechanism

There are two triggering mechanisms. First, the LTMS Management Committee (Management Committee) may, based on the yearly review of disposal volumes and evaluation framework discussed below, recommend that the San Francisco Bay Conservation and Development Commission (BCDC) and San Francisco Bay Regional Water Quality Control Board (SFBRWQB) vote to implement allocations. Second, every third year, when the LTMS agencies conduct the triennial program review and decrease the in-Bay disposal volume, if the average of the prior three years of in-Bay disposal volumes exceeds the in-Bay targets plus the 250,000 cy contingency, then the agencies will initiate consideration of allocations. Using a three-year average should provide adequate time for the interested parties (the dredging community, the LTMS agencies, and others) to implement measures to bring in-Bay dredged material disposal volumes below the LTMS trigger volumes prior to implementing Phase II. Discussions would begin at the annual workshop immediately after the first year of any exceedance.

6.5.2 Evaluation Framework

In evaluating whether to implement Phase II allocations, the LTMS agencies will not rely solely on a comparison of in-Bay disposal volumes to target volumes. The agencies will also take into account other factors, such as the status of cooperative efforts to implement reuse, exigencies that hamper use of alternative sites, and other relevant factors. The review process described below will follow a consistent framework regardless of the level of review described in sections 6.5.4.1 through 6.5.4.3. Each of the review processes will consider the following factors:

- Magnitude of any exceedance.
- Frequency of any exceedance.

- Trends or projections for the future (including the Management Plan success criteria listed below)
- Demonstrated efforts by all parties to support beneficial reuse, establishment of upland sites, and funding and use of such sites.

Other regional planning factors (Section 6.6) that will be used by the agencies to measure efforts to meet the in-Bay disposal goal include:

- Coordination of dredging projects to minimize environmental impacts.
- Inter project coordination to reduce year-to-year variability in in-Bay disposal volumes.
- Development of upland sites.
- Delta reuse.
- Political support for funding of LTMS.[1]
- Rehandling facility development.
- Combination of projects for reduced mobilization cost and increased efficiency.
- Compliance with dredging "best management practices" to minimize the need for dredging (Appendix I).
- Shared cost of disposal site monitoring:
  - Ocean
  - In-Bay
  - Beneficial reuse and disposal.

6.5.3 Management Plan Success Criteria

The Management Plan success criteria proposed at the January 20, 2000 LTMS workshop were divided into quantitative and qualitative categories. Each of these categories is listed below.

6.5.3.1 Quantitative

- Ten percent increase in funding for upland disposal annually.
- No lawsuits.
- Acreage of Bay habitat restored using dredged material.
- Increased number of approved alternatives to in-Bay disposal.
- Available in-bay disposal capacity.

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1 Nothing in this document is intended to influence congressional representatives to favor or oppose any legislation. It is the policy of the Chief of Engineers that all Corps of Engineers personnel fully adhere to the spirit and intent of 18 U.S.C. 1913, which prohibits such advocacy. The purpose of presenting this information is to inform the public of how the USACE carries out its mandate to maintain federal navigation channels.

- Document long-term trends and variability in dredging volumes.
- Meet or beat transition glide path.
- Depth of Alcatraz disposal site.
- Footprint of Alcatraz and other sites.
- Acreage of habitat created for threatened and endangered species.
- Number of sites for material that is not suitable for unconfined aquatic disposal to be reused.
- Adequate funding for LTMS.
- Increased number of rehandling facilities.
- Reduced cost for upland disposal.
- Maintain navigability and project depths.
- Reduced impact of dredged material on native species.
- Reduced navigational incidents or accidents, i.e., groundings.

6.5.3.2 Qualitative

- Do we have upland sites?
- Is Regional Planning underway?
- Healthier Bay.
- Predictability of testing (Regional Implementation Manual approved/adopted).
- Documented participation of all stakeholders.
- Local governments aware of LTMS process and taking action in reviewing dredging and disposal projects in support of LTMS (CEQA).
- Sustained regional economic contribution from maritime community.
- Process for dredging is “predictable.”
- Reduce uncertainty as to adverse effects of disposal or reuse of dredged material.
- Consensus on nomenclature for suitability of dredged material.
- In-Bay monitoring efforts of LTMS and RMP linked..

6.5.4 Yearly Review Process

Every year the LTMS agencies will review the progress toward the LTMS in-Bay disposal goals and recommend changes as necessary. This analysis will be conducted as part of the DMMO annual review and publishing of dredging and disposal data. Exceedances of the trigger will be investigated. The review consists of three levels and includes the DMMO, the Program Managers, and the Management Committee. Finally, the process is open and documented. This process is the same regardless of the phase the process is in or whether a recommendation is being made to change phases. Chapter 9 further discusses LTMS program reviews.

6.5.4.1 Level I Review

The Level I review will be accomplished by the DMMO and considers the following factors and produces a report documenting the results of the review (Appendix J):

- Disposal volumes for the year to each disposal environment, prior year's disposal volumes and relation to the in-Bay site limits and applicable disposal goals.
- Projections of the following year's disposal volumes in relation to the in-Bay site limits and application disposal goals.
- Magnitude of any exceedance of any trigger(s).
- A statistical analysis of both the frequency and magnitude of any trigger(s).
- An investigation of any causes of trigger being exceeded.
- An evaluation of the LTMS success criteria.
- A workshop to obtain input from interested parties if a recommendation to go into or out of Phase II (allocation) is being contemplated.

6.5.4.2 Level II Review

If the DMMO concludes further actions need to be taken based upon the programmatic review, then the Level II review will be conducted by the Program Managers to evaluate the causes of any trigger exceedances or other issues identified by the DMMO and provide written recommendations.

6.5.4.3 Level III Review

The Level III review will be performed by the LTMS Management Committee (Management Committee) to validate the written report submitted by the Program Managers. A workshop will be held to obtain input from interested parties regarding identifiable issues and potential actions to be taken. Based upon the report input from interested parties and any other factors they deem appropriate, the Management Committee will prepare its recommendations for any actions needed to resolve the identified issues. They will then forward the report with any modifications to the BCDC and the SFBRWQCB. If the Management Committee recommends that the Phase II allocations be made, then the BCDC and SFBRWQCB will consider whether to implement allocations within 60 days. The BCDC and SFBRWQCB will conduct a public hearing on why mandatory allocations should not be made, and the allocation program will be instituted, unless the BCDC and SFBRWQCB vote against implementing allocations. The vote on whether or not to go into allocations would be based on a majority of those present and voting.

6.5.4.4 Triennial Review Exceedance

As part of the three-year review, if the DMMO determines that the annual average disposal volume at the in-Bay sites over the preceding three years exceeds the trigger volume for that period, then the same process as described above for the annual review will be followed.

However, the BCDC and SFBRWQCB will vote on whether or not to implement allocations regardless of the Management Committee's recommendation.

6.5.5 Phase Transition

If an exceedance is documented at a triennial review or if the Management Committee recommends that allocations should be implemented, then the review process described above will begin. The process begins with the DMMO review and culminates in a public hearing, with final decisions on implementing Phase II being made by the BCDC and the SFBRWQCB.

The DMMO will initially evaluate the existing information in light of factors above. The DMMO will pass all information along to the Program Managers, along with a recommendation. The Program Managers will consider the information in light of the factors and will make a recommendation to the Management Committee. The Management Committee will make a final recommendation to BCDC and the SFBRWQCB.

If, in any year, the Management Committee recommends implementation of Phase II or if the target at a three-year review is exceeded, then the allocations will be implemented unless both the BCDC and the SFBRWQCB vote against allocations.

6.5.6 Allocations

6.5.6.1 General

Allocations will be based on the three-year allocations that would be in place had the LTMS agencies initiated the allocation system upon adoption of state policies. The starting total in-Bay volume target will be 2.80 mcy. Reductions will start three years after the adoption of the Management Plan. The in-Bay disposal volume will be reduced by approximately 387,500 cy every three years until the total in-Bay allocations reach 1.25 mcy. The LTMS agencies will not reduce allocations to a total of 1.0 mcy because this is considered a goal rather than a regulatory limit. The allocations will remain at this level for the remainder of the 50-year LTMS planning period, unless amended by the LTMS agencies during programmatic reviews.

An allocation does not confer a right to dispose of dredged material in-Bay. Project proponents must still satisfy Clean Water Act (CWA) requirements and Bay Plan feasibility requirements, meet any environmental window limitations, site capacity volume limitations, and permit conditions exactly as required in Phase I. If an alternative other than in-Bay disposal is practicable and feasible, in-Bay disposal will not be allowed.

Once a project has used its total in-Bay disposal volume allocation, unless the project would qualify for a portion of contingency volume, no dredged material from the project could be disposed in-Bay until a new allocation is received. The basic options available to a project would be not to dredge until a future allocation is received or use alternative disposal options.

Unused portions of annual volume allocations may be banked from year to year. If Phase II is invoked, dredging projects would receive an allocation based on what their allocations would have been had the mandatory allocations begun with adoption of state policies. Appendix K contains examples of Phase II allocations.

Trading of allocations, or portions of them, will be considered by the LTMS agencies as a potential management tool prior to implementation of Phase II and only after opportunity for public comment. It should be noted the U.S. Army Corps of Engineers (USACE) cannot participate in trading.

6.5.6.2 Contingency

A contingency allocation of 250,000 cy per year of in-Bay disposal would be available for unforeseen situations and emergencies. This contingency allocation would not affect individual volume allocations, but would be in addition to the overall in-Bay disposal volume target. This allocation volume will not be given out automatically. Dredgers would need to apply to the DMMO and document their need and applicability for contingency volumes, subject to review and approval by the Management Committee. Unforeseen dredging needs involve situations where unanticipated shoaling occurs substantially beyond normal shoaling patterns and is determined after condition surveys.

Emergency dredging would be based on agency definitions for emergency permit situations. BCDC's definition of an emergency is found in CCR Title 14, Section 10120. Emergency is defined as "…a situation that poses an immediate danger to life, health, property, or essential public service and that demands action by the commission more quickly than the Commission's normal permit procedures would allow. A situation that poses an immediate danger to life, health, property, or essential public services may include, for example, an accident, sabotage, vandalism, fire, flood, earthquake, or soil or geologic movements."

The USACE regulations for permits in 33 CFR 325.2(e)(4) defines 'emergency' as "…a situation which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process the application under standard procedures."

The USACE regulations for Operation and Maintenance of Army Corps of Engineers Civil Works Projects involving the discharge of dredged or fill materials into waters of the U.S. or ocean waters in 33 CFR 335.7 state, "Emergency means a situation which would result in an unacceptable hazard to life or navigation, a significant loss of property, or an immediate and unforeseen significant economic hardship if corrective action is not taken within a time period less than the normal time needed under standard procedures."

Unforeseen dredging needs and emergency dredging projects would be taken out of an applicant's existing or future disposal allocations. The only exception would be made for situations involving an unforeseen emergency.

6.5.6.3 Requests for Increased Allocations

Project proponents who propose in-Bay disposal from either new dredging projects that have not previously been assigned allocations or existing projects requesting increases to allocations will be required to prepare a detailed project-specific alternatives analysis that in-Bay disposal is the least environmentally damaging practicable alternative pursuant to the CWA for review by the DMMO. Granting of a new allocation may be made only if the DMMO review of the alternatives and Bay Plan feasibility analyses shows in-Bay disposal to be the only practicable alternative. This analysis will also take into account applicant and regional efforts to implement alternatives to in-Bay disposal, the necessity for the project, and other relevant factors. The volume allocated would be the minimum yearly average volume needed to maintain the facility. However, this in-Bay disposal allocation would be reduced, similar to other Bay projects, as if the project had been part of the allocation plan when the transition period started. The DMMO would determine, subject to Management Committee review, whether the new allocation should be made and whether it should be a one-time or ongoing allocation.

6.5.7 Alternatives Considered

The transition approach described in the preceding sections was developed by the LTMS agency staff in coordination with the interested parties. Facilitated workshops were held over the course of 18 months as the approach was formulated and refined. Consequently, the selected approach balances many interests. The LTMS agencies considered a range of alternatives to implement the transition, from strict in-Bay limits that decrease over time on a first-come, first-served basis, to relying solely on voluntary efforts to implement the LTMS goals. Other aspects were discussed, including various methods to trigger transition from Phase I to Phase II, and how to treat contingency volumes and emergency dredging under the transition. Appendix Q includes four position papers that were issued by the LTMS agencies over the course of this process. These documents help to explain the present transition process and the alternative approaches that were considered.

6.6 REGIONAL PLANNING

Many examples of regional approaches to long-term planning can be found in the San Francisco Bay Area (Bay Area) and throughout the United States. Many localities have elevated planning for public services and facilities to the regional level, due to their recognition that planning for these and other activities is not purely local in nature and requires a regional approach. Today many single-purpose regional agencies and special districts provide planning for water supply, transportation and waste management. Regional planning requires strong leadership to define the issues, to develop consensus on dealing with them, to build support for a program, and to marshal the resources needed for implementation.

BCDC and the Regional Board are Bay Area regional planning agencies which have developed plans to address specific resource and/or development issues. As described in this document, approximately a decade ago those agencies along with the USACE and U.S. Environmental Protection Agency (USEPA) joined together with navigation interests, fishing groups,

environmental organizations, and other members of the public to establish a long-term regional planning program for dredged material. The Management Plan presented in this document is the result of that regional planning effort. Nationally, there are several programs which address dredged material management through regional planning approaches. These include the National Dredging Policy, the National Estuary Program, the recent report to Congress by the Department of Transportation, and USACE Engineering Regulation.[2,3,4,5]

Regional planning requires close coordination and planning at all governmental levels and with all aspects of the private sector. Regional planning has been shown particularly successful in commerce, port planning, development, operations, and regulatory functions. The most successful regional planning efforts are those which have the ability to develop regional plans and the regulatory authority to implement their plans. The LTMS agencies have existing regulatory authority to implement the Management Plan. Full implementation of the LTMS will require planning activities beyond adoption of the Management Plan. This chapter discusses several specific advantages of continued development of LTMS regional planning activities and the consideration of areas not currently addressed in the Management Plan.

6.6.1 Definition of Regional Planning

Regional planning involves cooperative efforts by dredgers, agencies and other interested parties to promote and implement LTMS goals. These include:

- Cooperative use of beneficial reuse sites.
- Coordinating in-Bay disposal projects to prevent avoidable spikes in total disposal volumes, minimizing variability to control potential environmental impacts, thereby reducing the chances of triggering Phase II allocations.
- Coordinating monitoring and management of disposal sites to reduce redundancy and costs.

6.6.2 Need for Regional Planning

Projections of dredging volumes for the immediate future (about 5 years) appear to be well under the LTMS goals. However, it will be increasingly difficult after that time to meet the LTMS in-Bay disposal goal. Because of the long lead times necessary to establish (1) funding mechanisms (for example Appendix L, which explains the USACE operation and maintenance funding process for dredging) and (2) land disposal or beneficial reuse sites, long-term regional planning is needed to avoid crisis decision-making.

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2 The Dredging Process in the United States: An Action Plan for Improvement, December 1994 http://www.epa.gov/OWOW/oceans/ndt/report.html) or Appendix D of LTMS PLTMS EIS/EIR, Volume II.

3 Available at http://www.epa.gov/nep/nep.html

4 An Assessment of the U.S. Marine Transportation System, A Report to Congress, September 1999 (http://www.dot.gov/mts)

5 ER 1105-2-100, Planning Guidance Notebook, Appendix E18, April 22, 2000.

6.6.3 Advantages of Regional Planning

6.6.3.1 Increased Dredging Operation Efficiency

Dredging is extremely expensive and time-consuming. Mobilization and demobilization costs often range from 33 to 67 percent of the cost of a dredging episode. Moreover, SF-DODS monitoring costs range from $750,000 to over $1,000,000 a year and are largely independent of the volume of material. Faced with such costs, dredging sponsors generally delay dredging until absolutely necessary. Improved regional planning would allow ports, harbors, marinas, federal and state agencies, and environmental groups to coordinate dredging projects, in an effort to streamline tasks such as mobilization or monitoring. This will create greater economic efficiencies, while maintaining safe navigation and associated commerce vital to the Bay Area's economy.

6.6.3.2 Increased Likelihood to Receive Federal Funding

ER 1105-2-100, Appendix E-15 makes the following statements:

> "Project sponsors, local governments, port authorities, and other project users and beneficiaries are partners in dredged material management, and have a key role as the project proponents in building local consensus for the Dredged Material Management Plan [DMMP]."
>
> "[Dredged Material] Management Plans shall identify specific measures necessary to manage the volume of material likely to be dredged over a twenty-year period, from both construction and maintenance dredging of Federal channel and harbor projects. Non-Federal, permitted dredging within the related geographic area shall be considered in formulating [Dredged Material] Management Plans to the extent that disposal of material from these sources affects the size and capacity of disposal areas required for the Federal project(s)."

Establishment of a Local Planning Group will help ensure that dredged material management plans incorporate environmental considerations in the identification of short-term and long-term disposal alternatives, consider methods to reduce dredging, and maximize the beneficial use of dredged materials.

6.6.3.3 Reduction to in-Bay Disposal

Better coordination of dredging projects and cooperation among dredging project proponents increase the likelihood that alternative disposal sites (e.g., outside of the Bay) will be used in economies of scale enable smaller dredging projects to consider disposal or reuse sites not practicable for individual projects.

6.6.4 Regional Planning Coordination

Both BCDC and the Regional Board have adopted regional plans for the Bay. Chapter 10 of this document discusses the changes that are proposed in those plans to make them consistent with the Management Plan. For effective and appropriate implementation of the Management Plan, and to ensure maximum overall benefits to the region, it is critical that the implementation also be considered in light of other regional planning activities. The Regional Planning Group will insure that this coordination will occur, and will strive to achieve and maintain consistency with the Bay Plan, the Basin Plan and other plans such as the Baylands Ecosystem Habitat Goals report recently issued by the San Francisco Bay Area Wetlands Ecosystem Goals Project. One initial role of a Regional Planning Group would be identify other regional plans and planning activities and establish coordination mechanisms.

Effective regional planning efforts strive to preserve local authority over land use matters of purely local concern. Regional planning in most cases is more likely to empower local governments by giving them a greater voice in determining the future of their regions and protecting them from unregulated impacts from outside their communities. The Regional Planning Group would work to coordinate LTMS implementation with affected local communities and identify and minimize local impacts especially in terms of upland disposal options, proposals and impacts.

6.7 ELIMINATING UNNECESSARY DREDGING

The need for individual projects and the necessary depths for projects vary on a case-by-case basis. During the scoping period for the LTMS EIS/EIR it was concluded that the assessment of individual dredging projects was beyond the scope of that document. This Management Plan provides several programmatic management measures to ensure that only dredging (as opposed to disposal) that is necessary and minimizes both environmental risks and the expenditure of public funds will occur.

6.7.1 Dredging by USACE

It is USACE's policy that "Dredging shall be accomplished in an efficient, cost-effective, and environmentally acceptable manner …"[6] and the USACE is committed to conducting dredging and managing dredged material in an environmentally sound manner. The USACE in its initial evaluation of the benefits and costs of each project determines the need for ship channels and other navigation features. This assessment is periodically reviewed and updated to reflect changing conditions over time. The USACE's dredging projects need to be economically justified through a formal benefit–cost analysis and will not be dredged until the benefit cost ratio is greater than one. If the costs to construct or maintain a particular project exceed the expected benefits, the project is not economically justified.

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6 USACE ER 1130-2-520, Navigation and Dredging Operations and Maintenance Policies, Chapter 8, 29 November 1996.

The USACE, San Francisco District has also taken actions to reduce maintenance dredging requirements over the past 12 years. These actions include reducing over-depth dredging, realigning channels, and prioritizing dredging projects. Reducing over-depth dredging was implemented in the late 1980s. Before this time, the USACE typically paid for over-depth dredging up to two feet below project depths. Recently, no payment has been made for dredging below project depths and the amount of allowed over-depth dredging has been reduced. When necessary, the USACE realigns channels based on channel conditions and sedimentation rates. Realignment is limited by navigation considerations and channel authorization limits. No formal alignment evaluation procedure exists. In 1996, the USACE realigned the Napa River Channel to take advantage of deeper, natural portions to minimize the need (and subsequent cost) of dredging. By realigning the channel, the USACE avoided the need to dredge 200,000 cy for each dredging cycle. Prioritizing dredging projects is a program applied to all USACE Maintenance navigation projects. Maintenance dredging needs for each project are categorized according to usage and costs. Greater usage and lower cost (relative to cargo tonnage) categories are assigned higher priorities. Available funds for maintenance dredging are committed to higher priority categories first.

In the report by Moffatt & Nichol, entitled *Reducing Dredging Requirements Report* (LTMS 1992), the feasibility of reducing the maintenance dredging requirements for five federal navigation channels (the Petaluma River, Pinole Shoal, Redwood City Harbor, San Rafael Creek, and Suisun Bay Channel) in the San Francisco Bay region was identified. Twenty-seven alternatives to reduce maintenance dredging requirements were identified for these projects. Of these, 12 were considered favorable, i.e., they had benefit-cost ratios of greater than one and involved modest reductions to the required maintenance dredging volumes (10 percent to 20 percent). Some of the alternatives included changing dimensions of channel and flattening side slopes, mentioned above.

The following management measures will serve to ensure that only necessary USACE dredging which minimizes environmental risks and expenditure of public funds will occur:

- The USACE will initiate dredged material management plans for four of the eleven existing federal maintenance dredging projects in San Francisco Bay in 2001, and perform National Environmental Policy Act (NEPA) reviews as needed including supplementing the *Composite Environmental Impact Statement for Maintenance Dredging*. These reviews will include consideration of channel widths, depths, and configurations in terms of potential changes that could reduce the volume of dredging necessary to meet the navigational needs of each project.

The majority of the federal military facilities around the Bay shoreline have been closed in recent years. These facilities include the Mare Island Naval Shipyard, Naval Air Station Alameda, the Naval Supply Center Alameda and Concord Navel Weapons Station. As these areas are developed for civilian uses, some dredging may still be needed, but significant reductions to in-Bay dredging have already resulted from these base closures.

6.7.2 Ports

For ports, determining the need for dredging will continue to be based not only on site-specific aspects but also on the particular port's competitive position compared to other ports in the region and, particularly for intermodal cargo, to other ports up and down the coast that compete for intermodal trade.[7] The existence of deeper channels and berthing areas is only one factor affecting the distribution of intermodal trade. This competition also varies due to factors such as rail connections and routes, origin and destination of intermodal cargo, and alliances between rail and shipping carriers. This complex and dynamic analysis was beyond the scope of the LTMS EIS/EIR, as is true for this Management Plan.

Ports have no control over the increasing drafts of cargo ships. However, failure to provide sufficient channel depths will usually result in a loss of port calls and the revenue that would accrue to the regional economy. Instead of a project-by-project assessment of dredging needs, an analysis of historic dredging volumes and of potential factors that might affect the historic volumes was presented in the LTMS EIS/EIR. From this analysis, a planning estimate of the expected volume of dredged material over the next 50 years was derived. Furthermore, the LTMS EIS/EIR evaluated how best to distribute the expected volume of dredged material between the three disposal environments; to prepare for a worst-case scenario, the high range of the planning estimate—up 296 mcy over a 50-year period—was used.

Similar to the manner in which the USACE evaluates the costs and benefits of each new project, in order to determine the need for specific ship channels and other navigation features, the needs of the region's ports are assessed periodically and updated to reflect changing conditions over time. Each of the major ports, within the region, engages in a periodic review of past, present, and future port operations, as a part of the planning process for the *Seaport Plan* (BCDC and MTC 1997). During such reviews, the ports may consider the feasibility of structural and other measures that could reduce dredging requirements. Only dredging that is necessary should occur. The following management measure will serve to ensure this and minimize environmental risks and expenditure of public funds:

- As previously stated in the LTMS EIS/EIR (page 5-3), "BCDC, in consultation with other LTMS agencies, will continue to work with area ports within the framework of its joint Seaport planning process within the Metropolitan Transportation Commission to identify potential means to reduce the need for dredging while meeting the navigational needs of each port facility."
- BCDC, within both the framework of its joint Seaport planning process, and within the Metropolitan Transportation Commission, will consider the need for dredging—in addition to minimizing fill.

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7 Intermodal transportation means the convenient, rapid efficient, and safe transfer of people or goods from one mode to another during a single journey to provide the highest quality and most comprehensive transportation service for its cost (San Francisco Bay Conservation and Development Commission and the Metropolitan Transportation Commission, April 18, 1997 as amended September 18, 1997, San Francisco Bay Area Seaport Plan).

6.7.3 Regulatory Requirements

The need for individual projects and the necessary depths for projects vary on a case-by-case basis. During the scoping period for the LTMS EIS/EIR, it was concluded that the assessment of individual dredging projects was beyond the scope of that document. This is generally true of the Management Plan, although, this document provides several existing management measures to ensure that only dredging which is necessary, minimizes environmental risks, and minimizes expenditure of public funds will occur.

As a part of the existing authorization process, the LTMS agencies—individually or through the DMMO—require the project proponent to provide them with certain information regarding proposed dredging projects in order to determine whether such proposals are necessary and whether they involve dredging the minimum volume necessary. This information includes:

- Discussion regarding the need and purpose of the proposed project.
- Pre-dredging hydrographic surveys of the proposed dredging footprint and existing depths or elevations.
- Total volumes proposed for dredging (further information is provided in Chapter 3).

The permitting agencies will issue permits or authorizations containing certain requirements, which will be used to ensure that projects dredge the minimum volume necessary (i.e., approved volumes); including post-dredging hydrographic surveys and post-dredging volume reports. In the event it is determined that dredging in excess of the approved volume or outside of the approved footprint has occurred, as determined from the data provided by the project proponent, the permitting agencies will pursue such violations, which may result in the initiation of an enforcement action, or fines and penalties. BCDC policy (the Bay Plan) states that the BCDC should authorize dredging when the BCDC can find, among other things:

- "…the applicant has demonstrated that dredging is needed to serve a water-oriented use or other important public purpose…."

BCDC has other Bay Plan policies in place that are aimed towards reducing or eliminating unnecessary dredging. For example, the Bay Plan policies regarding recreation state, in part, that when considering the location and approval of new recreational marinas, the BCDC considers "unsuitable sites" to be those "…that tend to fill up rapidly with sediment.…" Further, with regard to such proposals, the recreation policies state that "frequent dredging [at such marinas] should be avoided" (BCDC 1969, as amended).

6.8 REDUCE DREDGING NEEDS

Dredging is necessary because suspended sediments settle out in navigation channels, port berthing areas, and marinas. Some of these suspended sediments are introduced by erosional processes in streams and rivers tributary to the Bay. However, the Bay is relatively shallow and supports extensive areas of mudflats. Large volumes of sediments are reworked in the Bay each year by wind and tides. Maintenance dredging would be needed even if new sediment sources

were removed. Recent research indicates that there may be a reduction in sediments loading to the Bay that could result in erosion to its marshes and mudflats. Understanding these processes and their interaction with the Bay dredging and disposal projects requires a watershed approach. While it is a national dredging principle to encourage dredged material managers to become more involved in watershed planning, the emphasis has been to reduce harbor sediment contamination. The LTMS agencies propose, and invite comment on, establishing a work group under the aegis of the Local Planning Group proposed in 6.6 above. This work group would explore working with existing watershed planning groups to better understand and manage sediment dynamics in the Bay in terms of both natural processes and human activities, such as dredging and disposal, water diversions, construction erosion, shoreline armoring and sea level rise. This should also include establishing links with the Natural Resources Conservation Service.